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ABSTRACT

Within the Concern-Based Adoption Model (CBAM), three key variables serve as tools for focusing on the individual teacher's progressive involvement in an innovative inservice education program. These three dimensions are: the teacher's attitude toward the innovation, changing level of use of the innovation, and perception of the innovation itself. In this report each of these dimensions is described, and illustrative research and implications are presented. A description of a current research activity in which these three diagnostic variables are being used is included. Several principles are listed as guidelines for designing and managing a CBAM inservice teacher education program. (JD)

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Concerns-Based Inservice Teacher Training:

An Overview of the

Concepts, Research and Practice

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Concerns-Based Inservice Teacher Training: An Overview of the Concepts, Research and Practice[1,2]

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Today's highly complex and dynamic shifts in student bodies, the structure and content of curriculum, societal expectations, and tightening of budgets are pressing teachers to be constantly developing new skills and resources, and refining already established competencies. The need for relevant, efficient, and effective inservice training to facilitate teacher improvement is clear. How to address the need is not so clear. Teacher educators and staff developers are asking: How do we make inservice training more effective and on target in meeting the needs of teachers? When should inservice training be delivered and how can it be designed to be most efficient, economical, and effective? As is suggested by the holding of this conference, developing answers to these questions requires a great deal of discussion and analysis, and must be viewed from many different perspectives. Further, it is clearly an international problem.

This paper is not a presentation of the ultimate solution. Rather, this is the presentation of one researcher and his colleagues who have been studying the

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[1]Paper presented at the Conference on School-Focused Inservice Training, March 2-3, 1978, Bournemouth, England.

[2]The research described herein was conducted under contract #OB-NIE-G-78-0116 with the National Institute of Education. The opinions expressed are those of the author and do not necessarily reflect the position or policy of the National Institute of Education, and no endorsement by the National Institute of Education should be inferred.

problems and experiences of teachers as they have been involved in implementing various educational process and product innovations. Hopefully, the ideas will provide a way of organizing and thinking about issues in inservice teacher training.

In this paper some concepts and findings of our research will be described. More detailed background documentation will be referenced when appropriate. Further, as I present each concept or finding, I will attempt to raise questions and implications that apply to the practice of inservice teacher education and future research on change.

The paper begins with a set of assumptions that underlie our views of change and the individuals experiencing change in schools and colleges. There follow descriptions of each of three key diagnostic dimensions of the Concerns-Based Adoption Model. For each dimension, concepts will be briefly described, some illustrative research presented, and implications drawn. The paper will then conclude with a description of a present research activity in which the three diagnostic variables are being used as the conceptual and diagnostic basis for a three-year concerns-based implementation effort in a large school system. In the final paragraphs of this paper, several principles will be listed as guidelines for designing and managing concerns-based inservice teacher training.

CBAM ASSUMPTIONS

Development of the Concerns-Based Adoption Model (CBAM) (Hall, Wallace & Dossett, 1973) was based upon extensive experience in implementing educational innovations in school and college settings. Underlying the model are several assumptions which set the perspectives from which we view the change process in schools and colleges. The present research activities, focused on the initial verification of several of the key components of the CBAM, are based upon these

assumptions, as is the view of inservice teacher training developed in this paper.

Before listing any of the assumptions, I think it is important to make a brief comment about the term, inservice teacher training. In the United States at least, at this time, there is a great deal of discussion about what specifically inservice teacher education entails and whether inservice teacher education training is different from "staff development." For the purposes of this paper, the term inservice teacher training will be used. The objective implied in inservice teacher training is one of providing resources, skill training and consultation; i.e., technical assistance, to teachers as they are developing new or different capacities. However, the concepts and ideas that will be described apply equally to staff development, taking a new job, a department reorganization, or constructing a new building.

Seven key assumptions of the Concerns-Based Adoption Model have direct relevance to this discussion of strategies and processes for concerns-based inservice teacher training.

1. Change in schools and colleges is a *process*, not an event. All too often it appears that policy level decision makers, administrators in schools and, in many instances, individual teachers assume that change is made at a point in time as a result of some sort of profound decision, legislative act or cataclysmic event. It is assumed that the teacher will change from using one reading text and instantaneously demonstrate great sophistication in using another. Or it is assumed that with the opening of school in the fall teachers will automatically be effective teamers. However, with the CBAM, change is viewed as taking time and entailing movement through a series of phases and stages.

2. The *individual* needs to be the primary focus of intervention for change in the classroom. For other change models (e.g., organizational development), the composite institution is viewed as the unit of intervention and the emphasis is placed upon improving communication and other organization norms and behaviors. From the CBAM perspective, the emphasis is placed on working with the individual teachers and administrators in terms of their roles and how they function with the innovation. Further, we would argue that the institution cannot be viewed as having changed until the individuals within the institution have changed.

3. Change is a highly personal experience. All too often it seems that inservice teacher educators, administrators and other change facilitators are overly attentive to the trappings and technology of the innovation and ignore the perceptions and feelings of the people experiencing the change process. In the CBAM, it is assumed that the change process has a personal dimension to it and that in many instances the personal dimension is of more critical importance to success or failure of the change effort than is the amount of technical support for the innovation. Since change is brought about by individuals, their personal feelings and perceptions, satisfactions, frustrations, concerns and motivations all play a part in determining success or failure of a change initiative.

4. Full *description* of the *innovation* in operation is a key variable. All too frequently it appears that innovation developers have not clearly or fully developed operational definitions of their innovations. Change facilitators and teachers do not know what the innovation is supposed to look like when it is implemented. Thus, another key assumption for concerns-based change is that there must be a full description of what the innovation entails when it is fully in use. Note that for the purposes of discussion here, the term innovation will be used to encompass both process (e.g., team teaching), and product (e.g., a new reading text) changes.

5. There are identifiable *stages* and *levels* of the change process as experienced by individuals. The change process is not an undifferentiated continuum. There are identifiable stages that individuals move through in their perceptions and feelings about the innovation, and identifiable skill levels that individuals move through as they develop sophistication in using the innovation.

6. Inservice teacher training can be best *facilitated* for the individual by use of a client-centered diagnostic/prescriptive model. To deliver relevant and supportive inservice teacher training, change facilitators need to diagnose where their clients are in the change process and target their interventions toward their diagnosed needs. In all too many inservice activities the trainers' needs are addressed, not the teachers'.

7. The change facilitator needs to work in an *adaptive/systematic* way. Because change is a process and because the focus for concerns-based inservice training is on individuals as they are involved in change, the change facilitator must constantly assess and reassess the state of the change effort. Change facilitators must constantly adapt their interventions in accord with the latest diagnostic information. And all of this needs to be done with constant awareness of the larger-organization context. The individuals involved in the change represent a subsystem of the larger system. Interventions made on them may have consequences elsewhere and actions and events that occur elsewhere within the system may in turn impact the subsystem that is the unit of change. Thus, the change facilitator/teacher trainer is constantly under conflicting pressures. On one hand, the change facilitator needs to be working diagnostically and prescriptively with the individual and, at the same time, the change facilitator must constantly keep in mind the larger system and its actions and reactions as the change process unfolds.

Based upon these assumptions then, the Concerns-Based Adoption Model has been developed. Within the CBAM, three key variables can serve as diagnostic tools for developing a clearer focus on what is happening with individual teachers who are the clients of the inservice teacher training programs and the frontline users of educational innovations. These three dimensions are: the teacher's Stages of Concern About the Innovation and Levels of Use of the Innovation, and Innovation Configurations. In combination, these three variables provide the change facilitator with the diagnostic tools and frame of reference to design and conduct concerns-based inservice teacher training and manage the change process. The larger organizational and user systems context will not be addressed in this paper. Rather, the focus will be on individual and innovation diagnosis and the design of concerns-based inservice teacher training. Each of the three variables named above will be described and then a brief illustration of a concerns-based inservice teacher training program will be presented.

STAGES OF CONCERN ABOUT THE INNOVATION

One of the key assumptions of the CBAM is that change is a personal experience. Everyone, as they approach a change, as they initially implement an innovation, and as they develop skill in using the innovation, will have certain perceptions, feelings, motivations, frustrations, and satisfactions about the innovation and the change process. In the CBAM, the concept of "concerns" has been developed to describe these perceptions, feelings and motivations of innovation users and nonusers. Project research has initially verified a set of stages that people appear to move through as they are involved in innovation implementation. These Stages of Concern About the Innovation provide one key diagnostic tool for determining the content and delivery of inservice teacher training activities.

The concept of concerns originated with research done by Frances Fuller (1969, 1970) at the Research and Development Center for Teacher Education at the University of Texas at Austin. Fuller, in her research, identified a set of concerns that preservice teachers expressed as they moved through their teacher education program. These concerns changed from initial, unrelated concerns about teaching ("I am concerned about getting a ticket to the rock concert next Saturday night."); to concerns about self in relation to teaching ("I wonder if I can do it."); to task concerns about teaching ("I'm having to work all night to prepare my lesson plans for the next day."); to impact concerns ("Are the kids learning what they need?"). All together, Fuller identified six different levels of concern that preservice teachers expressed at different points in their teacher training programs.

As the concept of teacher concerns was being disseminated, it became apparent that the concept applied in similar fashion to individual teachers and college professors as they were involved in implementing various educational innovations. Seven Stages of Concern About the Innovation were identified (see Figure 1). It appears that a person's Stages of Concern about an innovation move through the progression from self, to task, to impact that Fuller had identified.

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insert Figure 1 here

SoC Research

Subsequent research with the concept of Stages of Concern (SoC) has focused on the development of a reliable and valid measurement procedure for assessing SoC (Hall, Rutherford & George, 1977) and conducting a series of cross-sectional and longitudinal studies to initially verify that SoC exist. The findings from

Figure 1

STAGES OF CONCERN ABOUT THE INNOVATION*

0 *AWARENESS:* Little concern about or involvement with the innovation is indicated.

1 *INFORMATIONAL:* A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself/herself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.

2 *PERSONAL:* Individual is uncertain about the demands of the innovation, his/her inadequacy to meet those demands, and his/her role with the innovation. This includes analysis of his/her role in relation to the reward structure of the organization, decision making and consideration of potential conflicts with existing structure, or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.

3 *MANAGEMENT:* Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.

4 *CONSEQUENCE:* Attention focuses on impact of the innovation on students in his/her immediate sphere of influence. The focus is on relevance of the innovation for students, evaluation of student outcomes, including performance and competencies, and changes needed to increase student outcomes.

5 *COLLABORATION:* The focus is on coordination and cooperation with others regarding use of the innovation.

6 *REFOCUSING:* The focus is on exploration of more universal benefits from the innovation, including the possibility of major changes or replacement with a more powerful alternative. Individual has definite ideas about alternatives to the proposed or existing form of the innovation.

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*Original concept from Hall, G. E., Wallace, R. C., Jr., & Dossett, W. A. A developmental conceptualization of the adoption process within educational institutions. Austin: Research and Development Center for Teacher Education, The University of Texas, 1973.

these research studies confirm the existence of Stages of Concern and suggest, although this is not conclusive, that the phenomenon is more developmental than one might want to believe.

During implementation of an innovation it appears that Stages 0, 1 and 2 concerns will initially be most intense. As the implementation progresses, Stage 3, Management concerns become more intense, with Stages 0, 1 and 2 concerns decreasing. With time, the Impact concerns of Stages 4, 5 and 6 become most intense. Another finding from SoC research is that an individual does not have concerns on only one stage at a time; there is a concerns "profile" with some stages being relatively more intense and other stages having lower intensity concerns. As an implementation effort evolves, SoC profiles can be seen to change in wave patterns (see Figure 2).

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insert Figure 2 here

One sample of research findings that have direct implications for inservice teacher training is presented in Figure 3. Figure 3 summarizes the cross-sectional sampling of 307 elementary school teachers in regard to the innovation, team teaching.

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insert Figure 3 here

In these data, the "concerns profile" made by connecting the "0" points is typical of what is found for nonusers of an innovation. Their most intense concerns are at Stages 0, 1 and 2 and their least intense concerns are at Stages 4, 5 and 6. First year users of teaming have their most intense concerns at the

Figure 2

Hypothesized Development of Stages of Concern

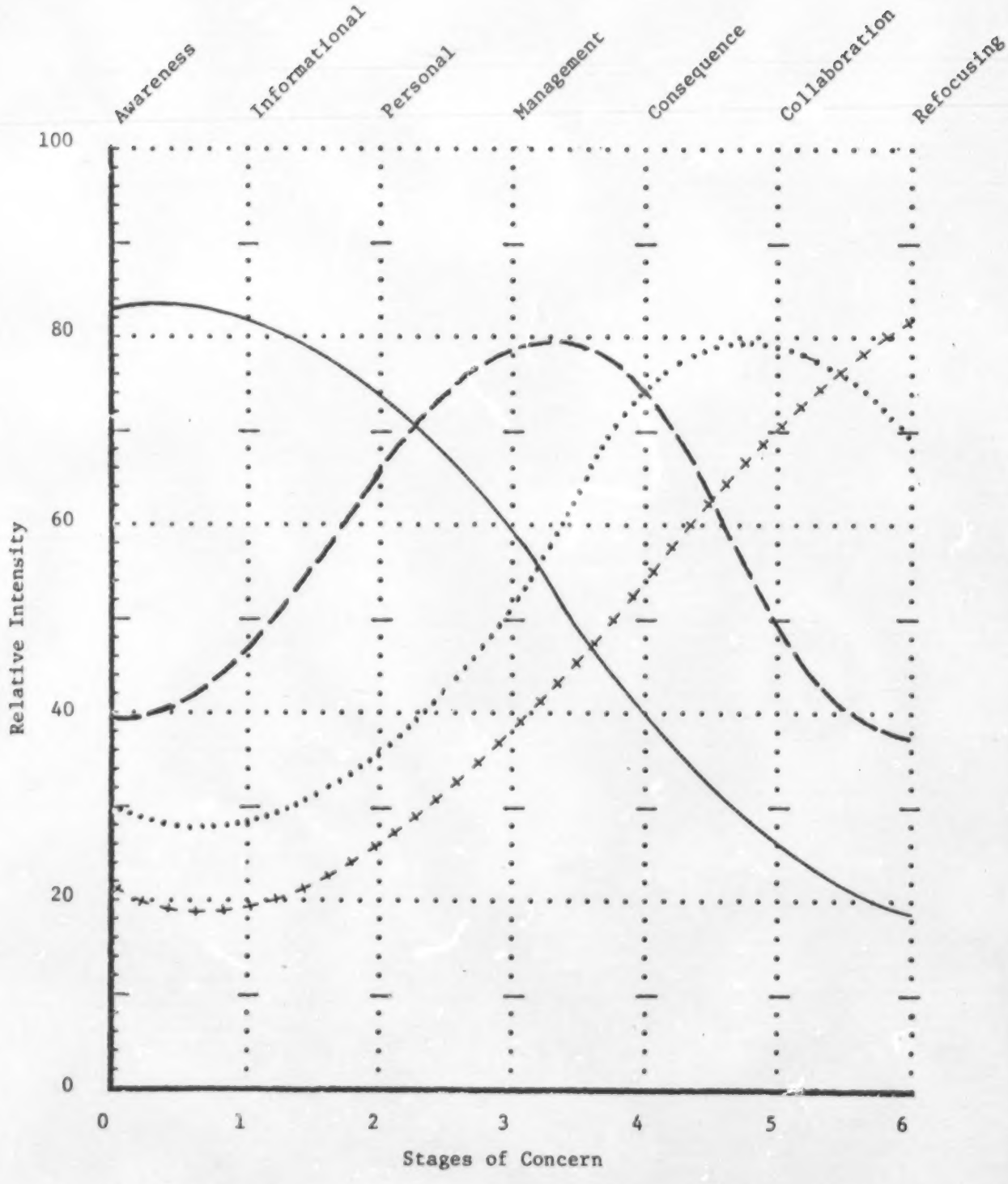
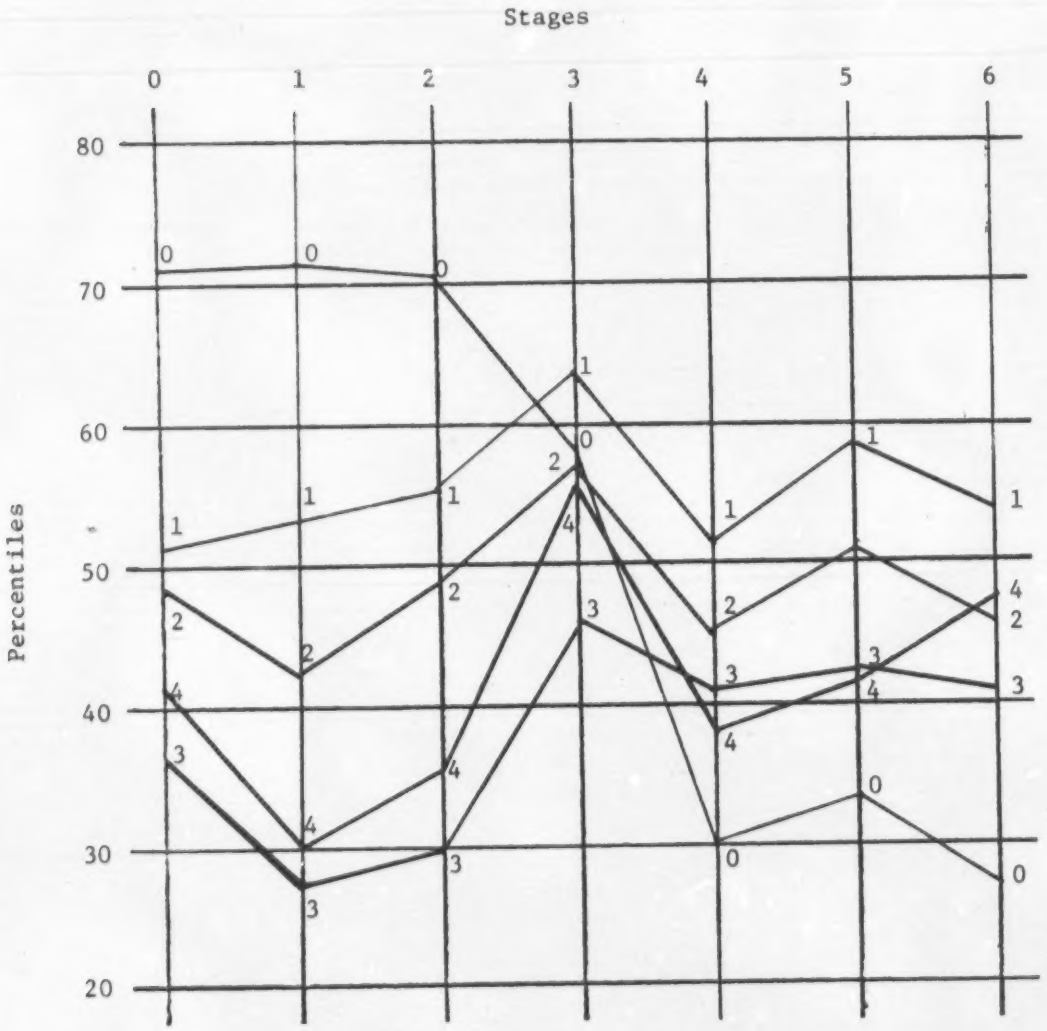


Figure 3

Distribution of Teachers' Concerns About Teaming According to Years of Experience with Teaming



0 = no experience with teaming	N = 46
1 = first year of teaming	N = 76
2 = second year of teaming	N = 18
3 = third year of teaming	N = 60
4 = fourth year of teaming	N = 107

Managment level, Stage 3. Second year teamers also had their most intense concerns at the Management level as did third and fourth-through-tenth year users of teaming. It appears that with the innovation of teaming, Management concerns are not quickly resolved. From other analyses of individual teams in this sample (Hall & Rutherford, 1976), it is clear that there are some teams who do move to various kinds of intense Impact concerns (high on Stages 4, 5 and 6). Additionally, there is team-by-team and individual variation in the nonuser profiles.

Implications for Teacher Training

From these sample SoC data, several implications for inservice teacher training can be drawn. First, it is clear from sample after sample with innovation after innovation that nonusers of an innovation have their most intense concerns on Stages 0, 1 and 2. They are most concerned about having general descriptive information about the innovation (Stage 1) and the implications that the innovation has for them personally (Stage 2). Further, they are not as concerned, relatively speaking, about the impact of the innovation upon students (low intensity in Stages 4, 5 and 6).

Analysis of these SoC profiles would suggest that inservice training for nonusers should address those initial informational needs and personal concerns, perhaps by presenting general descriptive information about the innovation and by describing how the innovation will impact them personally. For instance, potential users should be told the time it will take and what they will have to give up if they are going to use it. Additionally, their supervisor should show that use is her/his priority.

Analysis of these profiles would further suggest that the change facilitator should downplay the consequences of the innovation for students. Nonusers are

naturally somewhat concerned about the implications of an educational innovation for students but are more concerned about what the innovation means for them. Thus, the often heard administrator's statement, "You should do this because it's good for kids" is not addressing the concerns that the typical nonuser has. Further, it is hypothesized that this type of proclamation may further arouse personal and informational concerns in the nonuser rather than facilitate their resolution.

On the other hand, it appears that for first, second and third year users of teaming, Management concerns remain high. Thus, teacher training should be targeted toward these Management concerns. In the field sites where these data were collected, very little or no inservice support had been provided to the teachers implementing teaming. Thus, it appeared that in school after school, that teachers were left on their own to "discover" how to most efficiently organize and operate their teams. Since teaming is a process innovation, it does not have clearly defined products that can simply be plugged in. Rather, users of teaming need to develop process skills, both as individuals and as teams. To accomplish this through the discovery approach or on-the-job training would surely require an extended period of time. It should not be surprising that a great deal of time would be lost through inefficiencies. Comments, such as "We never seem to get even simple decisions made" and "I have to do all my planning at night because our team planning time is consumed in administrative tasks," were frequently heard.

We hypothesize that first year users of teaming, and in these samples, second and third year users as well; i.e., those whose Management concerns are high, would benefit from an Organizational Development (OD) workshop on agenda setting, decision-making and other basic teaming or group process skills.

Interestingly enough, this same workshop would likely provide too much detail

to the nonuser. The nonuser wants more general descriptive information and information about potential personal implications, not all the nitty-gritty detail that the Management-concerned user wants. In a concerns-based implementation, the OD workshop on agenda setting would probably not be provided to teachers until their Management concerns were more intense than their self-concerns, which does not appear to occur until actual use of the innovation has gotten underway.

LEVELS OF USE OF THE INNOVATION

The second key dimension for assessing people as they are involved in change is Levels of Use of the Innovation (LoU). The SoC dimension focused on the individual's perceptions, feelings and motivations about the innovation, while the LoU dimension focuses on what she or he actually does. With LoU, the focus is on the individual's behavior and performance with the innovation.

Eight different Levels of Use have been identified and operationally defined. The *operational definitions* for the overall levels are presented in Figure 4 along with *decision points* which have been developed to make clear the demarcation between the levels. Full operational definitions of the Levels of Use are developed and described elsewhere (Hall, Loucks, Rutherford & Newlove, 1975).

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insert Figure 4 here

Levels of Use begin with the individual "Orienting" her/himself to the innovation. The individual is actively engaged in looking over and reviewing materials, attending orientation workshops, examining the innovation and considering its use.

Usually, initial use of the innovation begins at a "Mechanical" Level of Use.

Figure 4

Levels of Use of the Innovation

LEVELS OF USE		DEFINITION OF USE
0	NONUSE	State in which the user has little or no knowledge of the innovation, no involvement with the innovation, and is doing nothing toward becoming involved.
	Decision Point A	Takes action to learn more detailed information about the innovation.
I	ORIENTATION	State in which the user has recently acquired or is acquiring information about the innovation and/or has recently explored or is exploring its value orientation and its demands upon user and user system.
	Decision Point B	Makes a decision to use the innovation by establishing a time to begin.
II	PREPARATION	State in which the user is preparing for first use of the innovation.
	Decision Point C	Changes, if any, and use are dominated by user needs.
III	MECHANICAL USE	State in which the user focuses most effort on the short-term, day-to-day use of the innovation with little time for reflection. Changes in use are made more to meet user needs than client needs. The user is primarily engaged in a stepwise attempt to master the tasks required to use the innovation, often resulting in disjointed and superficial use.
	Decision Point D-1	A routine pattern of use is established.
IVA	ROUTINE	Use of the innovation is stabilized. Few, if any, changes are being made in ongoing use. Little preparation or thought is being given to improving innovation use or its consequences.
	Decision Point D-2	Changes use of the innovation based on formal or informal evaluation in order to increase client outcomes.
IVB	REFINEMENT	State in which the user varies the use of the innovation to increase the impact on clients within the immediate sphere of influence. Variations are based on knowledge of both short- and long-term consequences for clients.

Figure 4 (continued)

LEVELS OF USE		DEFINITION OF USE
	Decision Point E	Initiates changes in use of innovation based on input of and in coordination with what colleagues are doing.
V	INTEGRATION	State in which the user is combining own efforts to use the innovation with related activities of colleagues to achieve a collective impact on clients within their common sphere of influence.
	Decision Point F	Begins exploring alternatives to or major modifications of the innovation presently in use.
VI	RENEWAL	State in which the user reevaluates the quality of use of the innovation, seeks major modifications of or alternatives to present innovation to achieve increased impact on clients, examines new developments in the field, and explores new goals for self and the system.

At this time, use of the innovation is somewhat disjointed, with the user hanging on to the user's guide. A great deal of time is spent on logistical-management kinds of activities. Problems may arise, and must be dealt with. Printed materials may not arrive on time - The crickets may die before the science lesson is completed.

Later on, use moves on to a "Routine" kind of use, where the user has the systems worked out and has a way to work with the innovation that is unchanging. Other users, however, move on to various types of "Refining" of their use of the innovation, making adaptations in the innovation and in their use of the innovation with the intent of increasing impact on clients. Again, the focus of LoU is on describing in behavioral terms what the individual is doing with the innovation.

LoU Research

During the last three years, we have explored the Level of Use concept extensively. Initial research activities involved the development of a measurement procedure for assessing Levels of Use. A focused interview procedure has been developed (Loucks, Newlove & Hall, 1975). The interviewer uses a branching format to probe the subject regarding her or his use of the innovation. Based on the information gathered in the interview and the operational definitions and decision points of LoU, the individual is rated on overall Level of Use and in seven categories that represent a more detailed breakdown of each of the levels. To verify the existence of the Levels of Use, the LoU interview has been applied in a series of cross-sectional and longitudinal studies in both school and college settings using a variety of process and product innovations. The findings from these research studies have verified that the eight different Levels of Use can be found in practice.

However, the distribution of individuals across the levels is not equal. Figure 5 represents a summary of the cross-sectional samples from two studies. One study was of teachers involved in teaming in elementary schools and the second study was on the use of instructional modules by college and university faculty. These samples were initially selected according to years of experience with the innovation and Levels of Use interviews were then conducted.

In both samples (see Figure 5), the largest proportion of individuals is at the IV A Routine level. It appears that most individuals who implement an innovation reach Level of Use IV A and remain there. Further analyses of this level have indicated that there are probably three types of IV A's. The first type is the mechanical user (LoU III) who is resting after having "made it" to Level of Use IV A. Another kind is the refining IV A who has just completed implementation of a refinement or adaptation of the innovation and may be resting from this refining activity. Finally, there are the "career IV A's" who appear to be unchanging IV A users of the innovation.

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insert Figure 5 here

Another analysis indicates that 60% to 70% of the first year users of an innovation are likely to be at the Mechanical Level of Use. The number of mechanical users decreases as years of experience with the innovation increase.

Analyses of longitudinal data suggest that movement in LoU is not lockstep all the way through. Individuals do not start at Level of Use 0 and sequentially move all the way to LoU VI. The movement from LoU 0 to LoU IV A does appear to be more sequential. Above LoU IV A, however, individuals may skip level IV B or V and move directly to VI or they may move in one of several combinations.

Figure 5

Percentage of Distribution of Overall Level of Use
for Individuals Involved in Cross-Sectional Studies of Two Innovations
Fall, 1974

LEVEL OF USE	STUDY OF TEAMING IN ELEMENTARY SCHOOLS N = 371	STUDY OF MODULES IN TEACHER EDUCATION INSTITUTIONS N = 292
0	7%	10%
I	9%	31%
II	3%	9%
III	19%	8%
IVA	52%	22%
IVB	6%	11%
V	3%	8%
VI	2%	2%

Further, it appears that once LoU IV A is reached, it appears that movement is more dependent on factors beyond control of the individual. That is, the organizational context appears to play a greater part, as does the role of the unit manager or principal.

Implications of LoU for Training

Implications for inservice teacher training that can be drawn from Level of Use are several. For example, the LoU III Mechanical user is in greatest need of the "how to do its" of getting the logistics and coordination of the innovation under control. She or he is probably not going to be interested in philosophical discussions or workshops dealing with more esoteric topics, such as criterion-referenced evaluation of the innovation or a summative evaluation of the innovation.

Another point that the teacher educator as well as the evaluator should acknowledge is that one cannot assume that all of the individuals within a school or a college are in fact "users" of the innovation or treatment. Unless it has been clearly documented, the opposite is probably true. In one large scale evaluation study (Hall & Loucks, 1977), we found that 20% of the teachers who were supposedly using the innovation were, in fact, nonusers. In the comparison schools that were assumed to contain nonusers, 49% of the teachers were, in fact, using the innovation. Staff developers and evaluators who take for granted that they have "pure groups" of users and nonusers may run the risk of no significant differences and low outcomes from their training sessions if they do not closely assess the exact Level of Use of the individuals with whom they are working.

Another implication that appears to be clear from the LoU data, as well as the SoC data, is that individuals involved in using an innovation are not apt to work collaboratively (LoU V) until after they have their "own house" in order. Each individual must master use of the innovation personally, in her or his own

context (classroom) before becoming active in collaborating with colleagues. This hypothesis leads to the suggestion that inservice teacher training should, perhaps, be designed differently, depending upon the long-range goals and requirements of the innovation. If collaborative use of the innovation is required initially, then the inservice training may need to include a "teaming" component. On the other hand, if collaborative use of the innovation can be deferred, then the inservice training might be stepped or phased according to the movement of Levels of Use. Each of the users could get their individual use of the innovation in order before they are encouraged to work with colleagues in coordinating use.

INNOVATION CONFIGURATIONS

Stages of Concern and Levels of Use provide two key ways of describing and understanding the individual involved in change. This third dimension focuses on the innovation. As innovation developers are well aware, the innovation is "adapted" and quite often drastically mutated as it is implemented. In fact, a great deal of thought has been given to this by diffusion researchers (Rogers & Shoemaker, 1971); (Berman, McLaughlin, Bass, Pauly & Zellman, 1977).

Although the name may remain the same across classrooms and across school sites, what is actually being done in different locations may differ dramatically. In many cases, these may be alternate forms of what the developer had in mind, while in other cases the variations may be altogether unacceptable forms of the innovation.

A part of our present research is focused on analyzing innovation adaptation. We are developing a concept we call <u>innovation configurations</u> and a procedure for determining innovation configurations.

One way to illustrate the concept is to think of driving a car as the innovation. The SoC dimension of the CBAM describes the perceptions, motivations and feelings that one has as she or he adopts, implements and institutionalizes

driving a car. The Levels of Use dimension describes the driver's performance from early Mechanical use, with grating gears and bumpy starts, to the Routine LoU IV A user's focus on the entire trip without a great deal of thought to the driving, to the refining driver, on the other hand, who is making refinements to increase gas economy or driving proficiency. Innovation configurations, on the other hand, describes the kind of car that is being driven. The car should be a Volkswagen, Ferrari, or Ford. On the other hand, it could be a bicycle.

A continuum can be visualized, as is illustrated in Figure 6, along which these various "innovation configurations" exist. At the extreme right is a description of the developer's model of the innovation. The developer's model entails all of the requirements and enhancements of operationalization of the innovation that the developer has in mind. A continuum then extends from the developer's model toward greater and greater adaptations and changes in the innovation, to some point (DP) where the developer insists that the mutations are so drastic that what is being used (driven) is not the innovation.

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insert Figure 6 here

Users and change facilitators may not agree with the developer's use/nonuse point. They often set other points as the point beyond which the innovation is no longer in use. What happens, in reality, is that the developer, change facilitators, and users do not agree on the point of drastic mutation. Instead there is an area or zone of drastic mutation within which some individuals will say that the innovation is operationalized and other observers will deny that the innovation is present.

Innovation Configuration Research

There are several aspects to research on the concept of innovation configurations that are presently underway at the Texas R&D Center. One is an attempt to clarify and describe the concept of innovation configurations. Another aspect of the research focuses on the determination of configurations through the use of a "configuration hunt." At the beginning of the Levels of Use interview, an attempt is made to determine which of many configurations a particular person is using. Then it must be judged whether or not that configuration represents use of the innovation or not. Based upon a series of interviews, configuration checklists have been developed for several innovations. These checklists identify key components of the innovation and variations within each of these components. From analyses of checklists filled out by interviewers and users and nonusers of the innovation, it is possible to identify dominant patterns or dominant configurations that occur across many classrooms.

Implications for Training

For the inservice teacher trainer, the concept of innovation configurations poses several questions. For example, has the innovation developer fully defined the operationalization of the innovation to the point where the change facilitator and the users can be reasonably articulate and confident about the presence or absence of the innovation? Are there alternate acceptable configurations? If there are alternate acceptable configurations, which one or ones of these will the change facilitator be attempting to implement? Or if it is an innovation bundle, such as competency-based teacher education or Individually Guided Education (Wisconsin R&D Center), should certain components of the innovation be implemented initially and, with subsequent cycles of use, other components of the innovation added? Further, it's conceivable that inservice training might best be targeted toward specific innovation components, such as the

organizational structural components, in earlier training, and the philosophy and subtleties of the innovation emphasized in much later training.

An interesting set of questions can also be raised for the evaluator and the developer. All too often, developers' written statements do not describe exactly what the innovation is like when it is operational. As a consequence, change facilitators and inservice teacher educators have difficulty in facilitating implementation. Also, it is difficult for the evaluator to know whether or not the configurations that are "in use" are in fact acceptable forms of the innovation. Further, implementors cannot determine whether the outcomes of evaluation studies were obtained from very pure configurations of the innovation or from adulterated configurations. Replicability of the study may be seriously affected.

AN EXAMPLE OF A CONCERNS-BASED INSERVICE TEACHER TRAINING PROGRAM

Now it is time to briefly illustrate how the concepts of Stages of Concern Levels of Use, and Innovation Configurations can be combined into a concerns-based inservice training program. Presently, the Texas R&D Center is halfway through a two and a half year concerns-based implementation study in a large suburban school district (N=80 elementary schools). The implementation involves teachers in grades 3 through 6. The innovation is a revision in the science curriculum. In the past, teachers have taught from some of the packaged science curricula that were nationally developed in the 1960's.

The revision of the science curriculum has entailed development of a Teacher's Guide that incorporates specific activities out of several of the packaged curricula (e.g., Elementary Science Study Units and Science Curriculum Improvement Study Units), as well as values education, outdoor education, environmental education and some health activities. The materials have been combined into one large notebook referred to as the Teacher's Guide. The

Teacher's Guide has been designed to address SoC 3 and LoU I-III issues. The how to do its of teaching are included, with information on where to locate the materials and organisms, how to order films, and what backup references the teachers can access.

The curriculum materials and the Teacher's Guide were developed and field tested within the school system. At the time that the Texas R&D Center became involved, the staff developers and the science consultants for the school system had completed field testing and were designing their plan for implementation of the science curriculum throughout the 80 elementary schools.

Their initial thinking had been to use three released-time inservice days placed fairly close together early in the fall of a school year. The inservice activities were of a good design and included the kinds of activities that science education in the last ten years has emphasized. The sessions would have teachers participate in student activities, introducing them to the various materials, science content, and experiencing the science units. Model lessons and direct handling of materials as a part of the teacher inservice activities would be done, and experienced inservice teachers would use it in the training. In general, the planned experiences are consistent with a concerns-based approach, except the pacing. As a collaborative effort developed between the school system staff and the staff of the R&D Center, the implementation game plan was adjusted based on SoC, LoU, and configuration data that were collected within the school system. In the following paragraphs, some of the aspects of the concerns-based implementation plan that is being used will be described and some data that have already been collected will be presented to illustrate initial findings.

One of the first changes in the implementation plan that resulted from the concerns-based influence was to stretch out the time between each of the released-time inservice days. In fact, rather than accomplishing the inservice

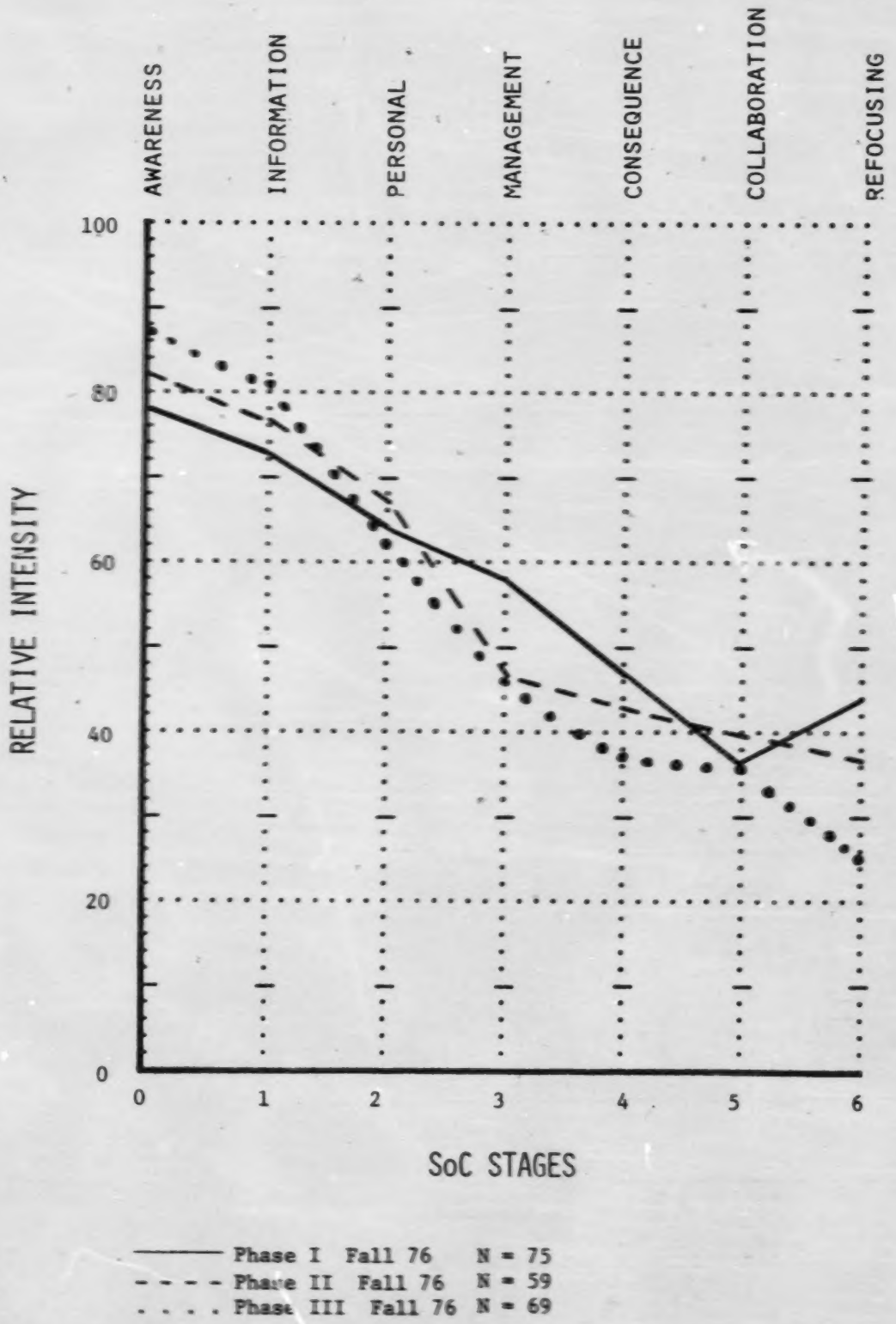
training before the school year started or within a six-nine week period, the inservice period was stretched over a year and a half. The reason behind this change was that the concerns of the teachers would not develop, within six weeks, from high Informational and Personal concerns to high intensity Impact concerns. Rather, it would take at least one to two cycles of use to resolve Management concerns and to move toward Impact concerns. By spreading out the inservice training days, more concerns could be addressed.

A second decision that was made early in the collaborative effort was to clarify the goal of the implementation effort. The school system had a choice, designing interventions to strive either for a proportion of the teachers teaching science at a high quality (Impact concerns, ideal configuration) or for all teachers simply teaching science. It was not conceivable that both goals could be accomplished with the same inservice training plan, as the content of the inservice training would be quite different. The school system's decision was to have "all kids receiving science instruction."

Based upon the initial assessment of Stages of Concern about the revised science curriculum (see Figure 7), it was decided that the Informational (SoC 1) and Personal concerns (SoC 2) needed to be addressed first. It was also clear that personal concerns were not particularly high, especially for nonusers. Thus, the emphasis was first placed on addressing informational concerns. The training activity selected was a small group, one hour after school, "pre-inservice" meeting. At this pre-inservice meeting, the teachers from two schools met with one of the science consultants and were introduced to the schedule and planning of the inservice days and received their Teacher's Guide. General questions were answered and the emphasis was placed upon general descriptive information about the curriculum and anticipation of Personal and Management concerns.

Figure 7

Science Study SoC Profiles Before Inservice



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insert Figure 7 here

Since there were teachers in the school system who had been involved in field testing the innovation in its draft form and because the Science Department and staff developers felt that there were many other teachers who were already highly proficient in the teaching of science, it was anticipated that most teachers attending the inservice days would have Management concerns and that some would have Impact concerns. Also, the inservice days would be attended by forty to sixty teachers at a grade level. For these reasons, the inservice days were designed with two tracks. One option was designed to address teachers with more intense Management concerns and the other route for teachers who had more intense Impact concerns.

The route that was hypothesized to be more relevant to teachers with intense Management concerns entailed face-to-face, continuing involvement with Science Department staff and the use of inservice teacher leaders. The content of these sessions placed a great deal of emphasis on the nitty-gritty and how to do its of teaching the science units. The alternate route that was targeted toward Impact-concerned teachers entailed self-paced modules dealing with such content areas as "wait time" in teaching behavior, Piaget, learning theory, and conducting outdoor education classes. These modules were designed to allow teachers to work individually and in small groups without constant trainer supervision.

As a part of the research effort, we have been documenting the concerns profiles of the teachers and identifying the routes they select in the inservice days. The concerns profiles for one of the workshops is presented as Figure 8. As was hypothesized, those teachers with higher Personal and Management concerns

(SoC 2 & 3) stayed in the large group with the face-to-face contact and the how to do it content. Those teachers who had lower Personal and Management concerns chose instead to move with the more independent, Impact-content, modular route.

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insert Figure 8 here

Another aspect of the implementation plan has entailed dividing the school system into thirds and moving one-third of the teachers at a time through the inservice sequence. Thus, it has been possible to learn from the first phase, things that need to be refined and adjusted for the second phase of teachers as they moved through, and, subsequently, for the third phase of teachers as they are moving through. This allows for repeated applications of our research design. As another part of the research, Levels of Use is being assessed twice during each academic year on a representative sample of each phase. At the present time, three assessments of Levels of Use have been made and are presented in Figure 9. It is clear from the Levels of Use distribution that as each third, or phase, has become involved in implementation, the number of users of the innovation has increased, as would be expected. Also, as one would expect from theory, the incidence of Mechanical level users is relatively high; the Routine users are high number; and the incidence of Levels IVB, V and VI is very low or nonexistent for first year use. Some higher LoU's appear to be coming in the Phase I schools in the second year.

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insert Figure 9 here

Figure 8

Phase I Grade 3

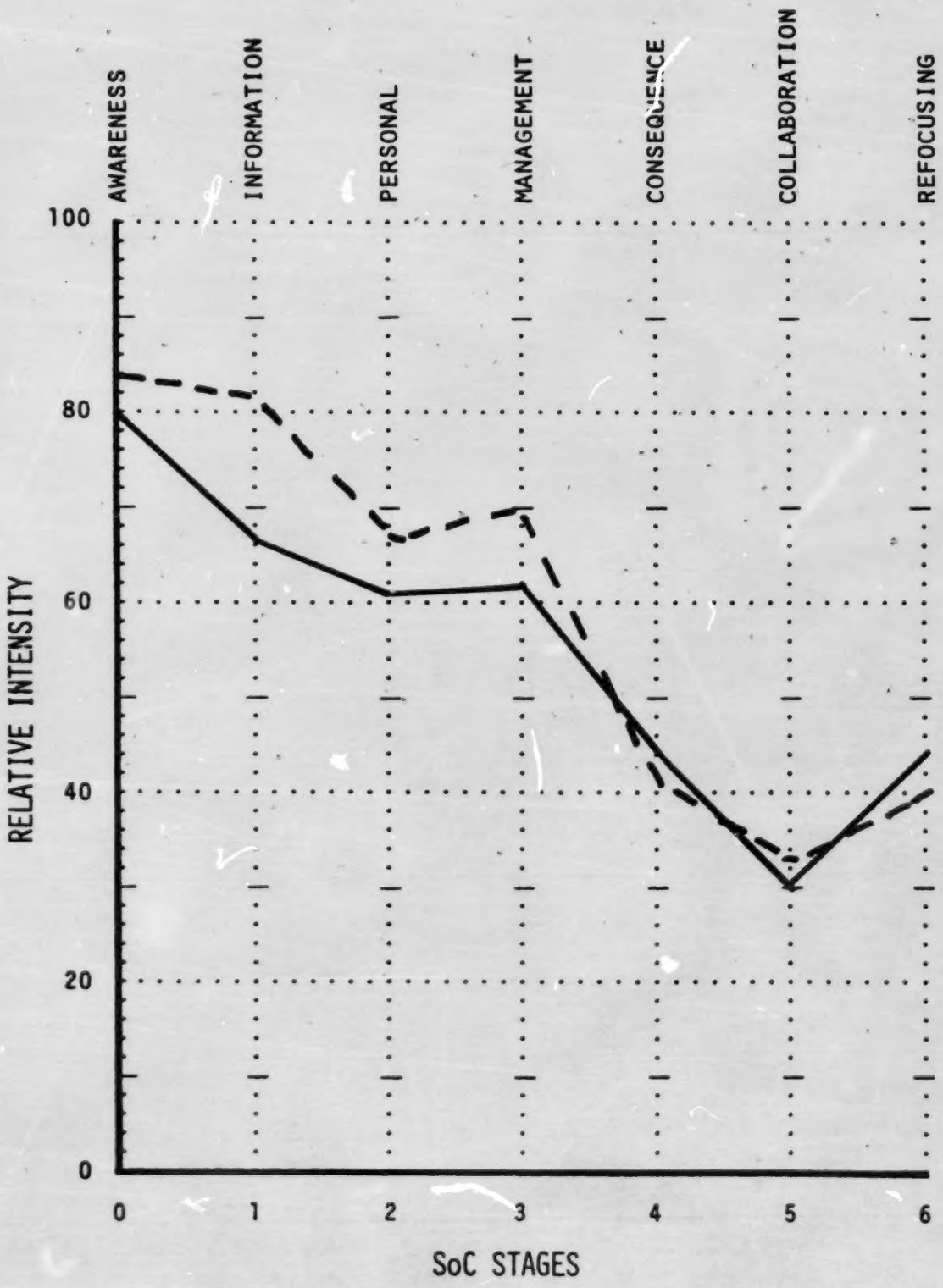

Figure 9

Overall LoU Distribution By Phases

		LoU (in percentages)								
		0	I	II	III	IVA	IVB	V	VI	N
PHASE I	Fall '76	5	9	83	1	1	0	0	0	75
	Sprg '77	0	4	10	53	24	7	1	1	74
	Fall '77	3	3	5	38	35	0	13	3	63
PHASE II	Fall '76	53	3	17	5	17	5	0	0	60
	Sprg '77	7	5	43	19	21	3	0	1	58
	Fall '77	4	11	11	40	23	6	4	2	53
PHASE III	Fall '76	80	15	1	3	0	0	0	1	69
	Sprg '77	66	3	24	6	0	0	0	1	70
	Fall '77	12	16	63	4	6	0	0	0	51

This potentially low level of Refining the LoU individuals is now raising another set of inservice training questions - Is LoU IV A an acceptable level at which to end implementation support (i.e., inservice teacher training)? What will happen to the configuration of the innovation if the Level of Use of the individuals is left alone? Will they continue using the present configuration, which our assessment indicates is a minimally acceptable configuration? Or will there be movement toward desired Impact-related refinements in the configuration, or movements away from acceptable configurations altogther? These and other questions are presently being grappled with in our collaborative effort.

The one clear hypothesis that there seems to be agreement on at this time is that the consensus goal for the implementation effort, i.e., all teachers teaching science/all kids receiving science, is being reached. However, the second goal, having high quality configurations of science teaching, is not being addressed by the present implementation effort. Thus, it appears that a second round of inservice training might be in order. That round of inservice training would have to have a different game plan and targeting. It appears that the unit of intervention will need to shift from the individual teacher. From other configuration research, it appears that the unit manager, i.e., the principal, plays a key role in setting configurations within the school. Therefore, for Refining LoU's and Impact SoC, we are hypothesizing that the school building must be the unit of intervention.

A policy question that arises for the school system at this point is whether or not the school system is responsible or should take on the responsibility of Refinement-oriented staff inservice training, and, if the school system does, should this be mandatory training or should it be optional? If it is optional, can we expect the individual at LoU IV A/low intensity Impact concerns

to attend? Probably not. These and other questions are presently being grappled with in this collaborative effort which has been an exciting one for the practitioners, the teacher educators, and the researchers.

CONCLUSION

In conclusion, it might be best to summarize a few key principles that seem to fall out from our research with the Concerns-Based Adoption Model. These are, in many ways, just brief summaries of what has been discussed above, but may add further perspective on concerns-based inservice teacher training.

1. Be sure to attend to persons as well as the innovation's technology.

There is an affective or personal side to change. Too often it appears that change facilitators and teacher educators become all-involved in the technology of the innovation and forget to attend to the persons that are involved.

2. It is okay to have personal concerns.

Personal concerns are a very real part of the change process and they need to be acknowledged and recognized as a legitimate kind of concern to have. It is the responsibility of change facilitators to attend to these concerns or else the individual is not apt to be able to resolve these and to move on to having Impact concerns.

3. Don't expect change to be accomplished overnight.

Since change is a process, entails developmental growth, and is a learning experience, it will take time. The managers of the change process and the designers of teacher training activities need to acknowledge and anticipate that change is a process and adjust their training activities accordingly. It would also be very helpful if policy decision makers become aware of this fact and stop assuming that their decrees and mandates will result in instantaneous

cures out in the field.

4. There is not a lot of glamour in implementation.

The glory in relation to change comes at the front-end and at the end of the long run. But in the middle, where all the struggle is, there is a great deal of hard work with little immediate pay-off. The glamour usually comes with the front-end flag waving, announcements, and proclamations. Attempting to resolve Personal and Management concerns and to facilitate each individual's move into and beyond a Mechanical Level of Use requires a great deal of time and energy. Individual consultation, hand holding, cajoling, answering the same question over and over while keeping in mind where it is all supposed to be going is a hard and highly skilled job. The pay-off from these implementation efforts does not come until the point, down the road, when one can observe an individual or an entire staff that has developed a new capacity and has fully internalized use of the innovation. Unfortunately, it appears that for all too many, the front-end flag waving is all that they have time for.

In this paper I have described some of our attempts to develop a deeper understanding of the change process as it is experienced by individuals. With the Concerns-Based Adoption Model as the conceptual framework, several dimensions that can be used for diagnosing where individual teachers are as they are involved in implementing various innovative practices and for planning inservice training have been described.

The paper began with descriptions of several assumptions; perhaps it is worthwhile to end the same way. There is another assumption underlying the CBAM that is probably apparent. Change in education should be a positive and worthwhile growth experience. In education, we have very few really bad innovations; there are many very good innovations that have not seen the light of day. When

change goes wrong, it is more than likely the change process that went wrong, not the innovation, the developer, change facilitators or individual users.

To add final commentary on this assumption, a quotation from the American humorist, Will Rogers, is in order: "Even if you are on the right track, you will get run over if you just sit there."

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